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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,522	11/05/2003	Tommy Hansen	H0610.0355/P355	9436
24998	7590	07/17/2008		
DICKSTEIN SHAPIRO LLP 1825 EYE STREET NW Washington, DC 20006-5403			EXAMINER HYUN, PAUL SANG HWA	
			ART UNIT	PAPER NUMBER
			1797	
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			07/17/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/700,522	<b>Applicant(s)</b> HANSEN ET AL.	
	<b>Examiner</b> PAUL S. HYUN	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-5 and 7-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5 and 7-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 31 March 2008 has been entered.

Claims 1, 3-5 and 7-10 are currently pending.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims **1, 3-5 and 10** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Amended claim 1 recites that the reactor ensures same pressure inside and outside the basket. This limitation is not supported by the Specification. However, because the claim recites that the equal pressure is achieved by gas leaving the basket inside the claimed reactor shell, it will be presumed that if a reacted gas leaves a basket inside a reactor shell, the pressure outside the basket and inside the basket will be equal.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **1 and 7-9** are rejected 35 U.S.C. 103(a) as being unpatentable over Öttle (US 4,160,010) in view of Fujitani et al. (US 4,109,461) and Ravault (US 3,895,917).

Öttle discloses a reactor for conducting chemical reactions (see Figs. 1 and 2). The reactor comprises a reactor shell 12 comprising an inlet and an outlet, a catalyst bed 22, and an impermeable basket in the form of metallic foil 30 that surrounds the sidewalls of the catalyst bed and flanges 34 that extend in a direction transverse to the inlet to support the catalyst bed. The foil 30 prevents the sample gas from circumventing the catalyst bed (see claim 1). The reactor disclosed by Öttle differs from the claimed invention in that Öttle does not explicitly disclose that the catalyst bed is designed for partial oxidation of hydrocarbons. Consequently, Öttle does not disclose the method step of partially oxidizing hydrocarbons. Lastly, Öttle does not disclose a ceramic coating.

With respect to the partial oxidation of hydrocarbons, Fujitani et al. disclose a reactor for partially oxidizing hydrocarbon products of an internal combustion engine to more environmentally friendly gases. The method comprises the step of feeding the hydrocarbons to a reactor comprising a

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catalyst (e.g. rhodium, nickel [see lines 2-3, col. 3]) and conducting a reaction in the temperature range between 800 to 1200 degrees Celsius (see Abstract). In light of the disclosure of Fujitani et al., it would have been obvious to one of ordinary skill in the art to substitute the catalyst bed disclosed by Öttele with the catalyst bed disclosed by Fujitani et al. so that the reactor can be used to partially oxidize hydrocarbons. It also would have been obvious to conduct a partial oxidation of hydrocarbons using the modified reactor since the reactor is designed to conduct such reactions.

With respect to the ceramic coating, Ravault discloses a reactor comprising a catalyst bed wherein the outer walls of the bed are rendered impermeable by a ceramic glaze (see claim 2). In light of the disclosure of Ravault, it would have been obvious to one of ordinary skill in the art to coat the inner walls of the foil of the modified Öttele reactor to reinforce the impermeability of the metallic foil.

Claims **3-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Öttele in view of Fujitani et al. and Ravault as applied to claims 1 and 7-9, and further in view of Mentschel (US 4,018,573).

None of Öttele, Fujitani et al. and Ravault disclose a heating means to maintain a high reaction temperature inside the reactor.

Mentschel discloses a reactor comprising an electric heater for controlling the temperature of the reaction within the reactor (see lines 20-35, col. 7). In light of the disclosure of Mentschel, it would have been obvious to one of ordinary skill

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in the art to provide a heater around the foil and ceramic coating of the modified Öttele reactor so that a desired reaction temperature can be maintained within the modified reactor.

Claim **10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Öttele in view of Fujitani et al. and Ravault as applied to claims 1 and 7, and further in view of Werges (US 3,929,421).

None of Öttele, Fujitani et al. and Ravault disclose a grid to support the catalyst bed. However, Öttele does disclose the use of flanges to support the catalyst bed.

Werges discloses a reactor comprising a bed of catalyst axially supported by a grid 63 (see Fig. 7). In light of the disclosure of Werges, it would have been obvious to one of ordinary skill in the art to substitute the flanges of the modified Öttele reactor with a grid to provide the modified reactor with a means that supports the entire catalyst bed.

### ***Response to Arguments***

Applicant's arguments with respect to the claim rejections have been considered but are moot in view of the new grounds of rejection. However, the arguments will be addressed because they remain pertinent.

Applicant's arguments with respect to claims 1 and 7 have been fully considered but they are not persuasive.

Applicant argues that the basket disclosed by Öttele is thin, soft and bendable whereas the claimed basket is stiff, rigid and strong. It should be noted

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that the features upon which applicant relies are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claim 1 merely recite that the basket is metallic, and the basket disclosed by Öttele is within the scope of the claim.

Applicant also argues that the claimed invention is patentably distinct from the reactor disclosed by Öttele because the claimed basket is gas tight from the inlet to the outlet of the catalyst bed, which enables the gas to flow through the entire catalyst volume. This argument is not persuasive because the basket disclosed by Öttele is also gas tight from the inlet to the outlet of the catalyst bed, which enables the gas to flow through the entire catalyst volume. As shown in Figure 3, the basket 30' forms a gas tight seal with ring 34', defining the inlet. Likewise, as shown in Figure 4, the basket 30" forms a gas tight seal with ring 36", defining the outlet. The basket ensures that the gas flowing through the reactor flows through the entire catalyst volume.

Applicant argues that the reacted gas passing through the claimed invention exits the basket inside the reactor shell whereas the gas passing through the basket disclosed by Öttele exits the basket outside the reactor shell. This argument is not persuasive. As shown in Figure 4 of Öttele, the basket 30" terminates at ring 36", which is still within the boundaries of the reactor shell.

Applicant argues that there is no motivation to apply the teachings of Ravault to the disclosure of Öttele because the ceramic coating disclosed by

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Ravault is porous and not mechanically strong. This argument is not persuasive because there is no evidence supporting Applicant's position.

Applicant's arguments with respect to claims 3-5 have been fully considered but they are not persuasive.

Applicant argues that the heater disclosed by Mentschel is situated outside of a reactor whereas the claimed invention specifies that the heater is situated inside the reactor. Applicant supports the position that the heater disclosed by Mentschel is situated outside of the reactor by pointing out that the heater disclosed by Mentschel is exposed to atmospheric air. This argument is not persuasive. First, Mentschel does not mention the term "atmospheric air", so Applicant's position does not appear to be supported by Mentschel's disclosure. Second, even if the heater disclosed by Mentschel was in contact with atmospheric air, it is unclear how contact with atmospheric air is determinative of whether the heater is positioned within the reactor shell. It appears from Figure 2 of Mentschel that the location of the heater 105 is positioned outside of the reaction chamber but inside the insulation 115 and housing 116 that define the boundaries of the reactor shell.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL S. HYUN whose telephone number is (571)272-8559. The examiner can normally be reached on Monday-Friday 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax



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phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paul S Hyun/  
Examiner, Art Unit 1797  
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/Jill Warden/  
Supervisory Patent Examiner, Art Unit